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AUTHOR	Soar, Robert S.; And Others
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ABSTRACT

As part of the evaluation of project Follow Through, the Institute for Development of Human Resources of the University of Florida collected observational data in a sample of classrooms representing a number of experimental programs. Three waves of data have been collected: 70 classrooms each in the winters of 1969 and 1970, and 289 in the winter of 1971. Two goals of this project were: (1) to describe in behavioral terms the differences among the programs as observed in the classrooms, and (2) to relate these behavioral dimensions to pupil growth. The observational measures were selected from already existing instruments and represented a broad conception of classroom interaction as it has been developed over the past years. The instruments ranged from one with very extensive research background to two with some previous use and to one which was newly developed from work of others. To enable study of relations between measures of classroom observation and pupil growth, Stanford Research Institute, the principal outside evaluator of Follow Through procedure, provided test data on pupils.
(Authors/SB)

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Factors Affecting Pupil Cognitive Growth in Disadvantaged Children[1]

Robert S. Soar[2], Ruth M. Soar[3],
Marjorie Ragosta[2], Earl Blekking[2]

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Introduction

As part of the evaluation of project Follow Through, the Institute for Development of Human Resources of the University of Florida (IDHR) assumed responsibility for collecting observational data in a sample of classrooms representing a number of experimental programs. Three waves of data have been collected: 70 classrooms each in the winters of 1969 and 1970; and 289 in the winter of 1971.

Two sets of goals lay behind this effort:

1. To describe in behavioral terms the differences among the programs as observed in the classrooms, and
2. To relate these behavioral dimensions to pupil growth.

The observational measures were not focused directly on the identification of sponsor objectives and the development of items to represent them. Rather, they were selected from already existing instruments and represented a broad conception of classroom interaction as it has been developed over the past years. The instruments ranged from one with very extensive research background to two with some previous use, to one which was newly developed from work of others.

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[2]University of Florida, Gainesville.
[3]Florida Educational Research & Development Council, Gainesville, Florida.

To enable study of relations between measures of classroom observation and pupil growth, Stanford Research Institute (SRI), the principal outside evaluator of Follow Through procedure, provided test data on pupils.

Procedure

Classrooms were selected in order to represent eight different programs as well as possible with a comparison sample in addition. The programs were selected to represent the diversity present in Follow Through (although the latter criterion was a subjective and uncertain one), as well as programs having larger numbers of classrooms. The sample is by no means random, with a major constraint being the number of classrooms available at each grade level within each program, for which Stanford Research Institute had collected data from the pupils. Four grade level groups were observed, kindergarten, entering first (first grade pupils without previous Follow Through experience), continuing first (first grade pupils with previous Follow Through experience), and second. A total of 289 classrooms were observed, in 50 communities, in 26 states plus the District of Columbia. Comparison classrooms were selected from the same settings in which programs were located, in the hope of equating, in a rough way, system related variance for program and comparison classrooms.

Classroom Process Measures

Florida Climate and Control System (FLACCS) - This system has two major sections--the first records the classroom management techniques of the teacher and pupil response, as well as pupil assumption of responsibility for classroom procedures; the second records expression of

affect in the classroom--verbal and non-verbal, teacher and pupil, supportive and non-supportive. The South Carolina Observation Record (Soar, 1966) was the principle source of items, but it, in turn, drew heavily on the Observation Schedule and Record (Medley and Mitzel, 1958), and the Hostility Affection Schedule (Fowler, 1963). Additional items have been taken from the work of Katz (1968) and Sears, Rau and Alpert (1964). Extensive numbers of original items have also been developed during successive years of this project. Teacher management items include such as a block of 20 items scaled in terms of the coerciveness of teacher verbal direction giving, another block of nonverbal items scaled the same way, items reflecting freedom of pupil choice, freedom of movement, involvement of pupils in task, correction and direction giving by pupils.

Teacher Practices Observation Record (TPOR) - This is an instrument developed to measure the agreement or disagreement of teacher's practices with John Dewey's experimentalism (Brown, 1968). There are no pedagogically "bad" items, and every item describes a teacher behavior that is widely practiced in schools. Half the items, however, reflect agreement with experimentalism, and the other half do not. Its major classifications are: (a) the nature of the situation, (b) the nature of the problem, (c) development of ideas, (d) use of subject matter, (e) evaluation of pupils' work, (f) differentiation of tasks, and (g) motivation and control. Brown has shown relationships between teacher behavior as measured by this instrument, and teachers' beliefs and attitudes, and the instrument has also shown relationships with pupil subject matter growth in previous years of this project.

The Reciprocal Category System and the Florida Taxonomy of Cognitive Behaviors were also used but the results for these instruments will not be discussed here.

Observational Procedure

A team of two observers collected data in each classroom. One observed using FLACCS, the other the TPOR, and halfway through the sequence of 12 observations, they switched instruments. The two instruments were used in parallel, with five minutes given to observation followed by at least five minutes for recording the behavior observed.

Pupil Measures

Pupil measures were administered in the fall and in the spring by Stanford Research Institute, the major external evaluator for Project Follow Through. The general procedure was one in which standardized tests were broken up into random halves, subtest by subtest, and these random halves, in turn, were randomly assigned within each classroom. Reliability information on these half-length tests is not reported. The kindergarten battery consisted of The New York University Early Childhood Inventory, the Lee-Clark Reading Readiness Test, the Preschool Inventory (Caldwell-Soule), and the Wide Range Achievement Test. The first grade sample was administered half length versions of the Metropolitan Readiness Test, the Wide Range Achievement Test and two other tests assembled from items identified by program sponsors as representing objectives of their programs.

Analysis of Data

The data from each of the observational instruments went through the same sequence of analyses. An initial set of measures, made up either of individual items or of a priori groupings of items, were area transformed

to make the distributions as normal as possible and the variances as nearly equal as possible. These transformed scores were then factor analyzed by principal components extraction and varimax rotation, and the standing of each classroom on each factor expressed as a factor score. Incomplete factor scores, in which measures loading ± .40 or higher were pooled with equal weights, were employed (Horn, 1965). In the case of FLACCS, since it was, in effect, two instruments, the control section and the affect section were separately factor analyzed, items were selected on the basis of their loadings from those factor analyses, and carried forward into a third factor analysis for the total instrument. For each of the instruments, the factor scores were tested for significance of differences between the programs observed, by Duncan's multiple range test (Dixon, 1970). The same factor scores were also correlated with measures of pupil gain using the classroom as the unit of analysis.

Pupil data were reduced in two ways: by factor analysis, and by a priori groupings of items. Exploratory work the first year of the project had indicated that the factor structure for regressed gain differed from the factor structure of status scores (pretest or postest scores). Consequently, regressed gain was calculated item by item and the regressed gain scores factored. The result, for the kindergarten data, in the second year's analysis was three factor scores--one called Simple-Concrete which involved recognizing or naming letters or numbers; a second called Skill which represented relatively simple academic skills such as simple arithmetic computations, or phonics skills; and a Complex-Abstract which represented such activities as solving verbal problems in arithmetic, matching complex figures, or information such as "what does a teacher do?" or "Where would you find a boat?". For the first grade data, the second

year, there were difficulties in arriving at clear factor structure, and items were grouped arbitrarily into composites which paralleled those obtained the first year, and in the second year's kindergarten data. The adequacy of these composites was tested by item analysis and additional items added on that basis. In the first grade data, it appeared that group administered items were not highly correlated with individually administered items, even though the same differences in abstractness were noted. As a consequence, individual and group administered data are reported separately as well as pooled.

In the third year's analysis (that reported here) the adequacy of both sets of composites was reexamined by correlating items with composites. In the first grade data, one additional item could have been added to one of the composites on the basis of this new analysis, otherwise all of the items related most strongly to the same composite to which they had been assigned in the previous year's data. As a consequence, the same composites were used the third year as the second.

The original plan was to relate the classroom observation factors to classroom mean gain for each of the composite regressed gain scores. When this process was carried out, the results differed in many cases from earlier findings, so additional analyses were carried out in the attempt to identify other variables leading to the differences. One set of analyses was carried out by separating data from large cities from smaller cities. The dividing line was a population of 150,000, except that Berkeley was grouped with the large cities on the basis of its metropolitan area. Another set of analyses was carried out by utilizing SRI data which identified the ethnic group of the pupil and whether or not he was receiving full Follow Through services, presumably on the basis

of the federal guidelines. By this means, four subgroups of pupils were identified white-advantaged, white-disadvantaged, non-white-advantaged, and and non-white-disadvantaged. When classroom means were calculated for pupils in four categories, only two subgroups were numerous enough for further analysis -- non-white disadvantaged, and white advantaged. Accordingly, when the terms advantaged and disadvantaged are used, these are the subgroups which are being cited.

Results

Teacher Practices Observation Record (TPOR)

When correlations were first calculated between classroom mean gain and the process measures, they frequently differed from previous findings, and from at least some theoretical expectations. To summarize these findings, the results fairly often showed such things as convergent teaching, and the teacher's emphasis on right answers relating positively to measures of pupil growth; and with experimental teaching, a more inquiry oriented approach, relating negatively to a variety of measures. One of the possible interpretations of this finding has been advanced earlier (Soar, 1968), that is, the measures of pupil growth may often be related in nonlinear fashion to measures of classroom behavior. As an example, a pupil's freedom to explore is positively related to learning up to a point, but beyond that point, greater freedom leads to decreased pupil growth. The effect is a relationship which looks like an inverted "U" (the inverted "U" hypothesis). As a consequence, the direction of the relationship depends on the level of the classroom behavior. In a group of classrooms in which pupil freedom is low on the average, it might be expected to relate positively to pupil growth, but if the general level of pupil freedom is high, the measure might

be expected to relate negatively to pupil growth. It was this general expectation which led to the further analyses.

Kindergarten - When the correlations between the TPOR and pupil growth were compared for the large and small cities, (Table 1), convergent teaching related significantly positively to pupil abstract and skill growth in small cities, but essentially zero in large cities. Since the level of Convergent Teaching is higher in large cities, this finding appears to fit the hypothetical relationship of an inverted "U" which is proposed. That is, with lower levels of the behavior in small cities, a positive relation is shown, but the higher level in large cities places that set of data at the top of the "U" with a correlation of zero. It is also possible, of course, that the relationships simply differ in these subgroups in interaction with other variables. (There were also differences in the programs which were present in small and large cities. For example, in kindergarten, the small cities contained a disproportionate share of programs which stressed freedom of pupils to choose their own activity, with the presence of auto-instructional materials.)

This finding is supported by TPOR Factor 5, Pupil Free Choice versus Teacher Structured Activity, which related negatively to abstract and skill growth in small cities, but essentially zero in large cities. Parallel differences in means were found in which small cities showed roughly a standard deviation more pupil freedom than large cities. A further parallel can be seen in Factor 7. Essentially, the TPOR appears to suggest that higher levels of freedom (or lower levels of teacher control) relate negatively with pupil growth.

Nonentering First Grades - As Tables 2 and 3 indicate, the data for first grades show significant positive relationships between convergent teaching and the measures of pupil growth. The relationships are sufficiently variable in the small city data that it is uncertain whether these associations differ from those of large cities, and the means are similar in size. A further problem is that the small city sample for first grades contains a large proportion of contingency management classrooms, in which convergent teaching is common, and skill learning is emphasized, whereas large cities have few.

Experimental teaching, as defined by Factor 2, is roughly a standard deviation higher in large cities than in small cities, and relates negatively with pupil growth in the large cities but not significantly in the small cities. The factor is related to days absence in small cities, but not in large cities. Plots of linearity of the latter data were carried out for large and small cities for days absence, with the finding that the relations were essentially linear in both cases, but simply different from large cities to small cities.

There appears to be a general trend through the kindergarten and first grade data for the TPOR indicating negative associations between greater amounts of pupil choice or freedom for exploration of ideas, and measures of pupil growth. With some consistency, teacher structuring and direction-giving tends to be positively associated with pupil growth. While these associations are in directions which are opposed to those usually expected (and those found in earlier research in this project), differences within subgroups suggest that the greater the pupil freedom the more likely associations are to be negative.

The only significant associations between absences and classroom process are found in small cities, but those are consistent in indicating that greater freedom is associated with fewer absences, and vice versa. These findings suggest that the classroom behaviors which relate to pupil academic growth tend to relate oppositely to school attendance. If absences are taken as a reflection of the pupil's liking for school, then it appears that conditions which lead him to like school may not be the same as those which lead him to learn (at least for the measures employed here).

When the data for advantaged and disadvantaged status are examined (Table 4), there does not appear to be evidence for a difference in correlations. If there are differences here, the variability of the data make them difficult to identify. However, Convergent Teaching is positively related to pupil growth as it was for the analysis by city size, but there is a suggestion of a negative relation with Group ~~Abstract~~ Skill growth for advantaged pupils. This same reversal is also true for Experimental Teaching, which relates negatively with individual skill growth for advantaged pupils, but positively with group skill (not significant, however).

There is a suggestion among other factors, that for the advantaged pupils, the group measures relate differently to teacher behaviors than the individual measures. This is most true for skill, and less so for concrete and abstract. Few of the relations are significant but the consistency is intriguing.

Florida Climate and Control System (FLACCS)

Kindergarten - As shown by Table 5, although Pupil Free Choice did not differ with city size as measured by this factor, it was negatively related to growth in small cities but not in large. Teacher-pupil Supportive Behavior

Factor 3, was similar across cities, but the correlations are perplexing. The factor shows little evidence of task involvement, and this may account for the negative correlation with abstract growth, but the positive relationship with days absent is difficult to understand.

Pupil Negative Affect was somewhat higher in large cities than small (though not significantly), but it was significantly negatively associated with growth in small cities but not in large. The reverse would be reasonable -- that the negative correlation should be higher where the level is higher. This finding, along with the correlations for Factor 4, Non-verbal Gentle Control, raise the question of whether positive and negative affect in the classrooms may have different effects in smaller cities and larger. Individual attention by the teacher (Factor 8) was similar in level across city size, but in large cities it related positively to skill growth and negatively with absences.

Teacher Positive Affect is significantly higher in small cities, and correlates negatively there. The possibility that the larger amounts of positive affect may occur in non-task settings seems reasonable. In addition the items that make up the factor are largely impressionistic rather than specific, which may make them less meaningful.

These findings for FLACCS agree with those from the TPOR in suggesting that greater amounts of freedom for pupils in kindergartens is associated with less growth rather than more. Another parallel appears to be that associations between classroom behavior and pupil growth are generally stronger in small towns than large cities.

Non-entering First Grade - Tables 6, 7, and 8 present data for first grade pupils by city size. Strong Control appeared to be more strongly

negatively related to pupil growth in small cities than in large; a parallel trend was observed in kindergarten although not as strong. As with the TPOR, and the kindergarten FLACCS, Pupil Free Choice was negatively related to growth, especially Skill. As it did in kindergarten, Teacher-pupil Supportive Behavior related negatively to pupil growth. The correlations appeared to be stronger in large cities. Again, perhaps a lack of task orientation was a factor. The factor also related negatively with absences in small cities. Non-verbal Gentle Control, Factor 4, occurred at a lower level in large cities, and was negatively associated with pupil growth, in contrast to showing no significant relations in small towns. This association in relation to the finding of higher negative pupil behavior in large cities, suggests that the greater use of gentle control methods in the large cities may sometimes not be effective.

Pupil Negative Affect, Factor 7, although occurring at a significantly higher level in large cities, does not clearly relate differently to pupil growth in the two settings. It related negatively in both cases.

The negative correlations of Teacher Positive Affect (Factor 9) with pupil growth in large cities is again perplexing. As mentioned earlier, it may be that the higher expression of positive affect occurs in non-task settings, or the finding may be a function of the items on this factor being impressionistic rather than specific. The negative relations of Teacher Positive Affect with absences in small cities seems reasonable, however.

Greater amounts of Seat Work, Factor 6, (which do not involve contact with the teacher) appear not to be functional in either size city.

These data continue to support previous indications that greater amounts of freedom are not functional for academic growth as measured here, and

that the relations between classroom behavior and pupil growth differ from small city to large city.

The data showing relationships for advantaged and disadvantaged pupils are shown in Tables 6, 9, and 10. The only significant difference between means is for Factor 1, Strong Control, which was higher for disadvantaged pupils. The only significant relation with pupil growth was a negative one for advantaged pupils. Again, the higher level does not relate. Factor 2, Pupil Free Choice related negatively for disadvantaged pupils, particularly for skill growth. Teacher-pupil Supportive Behavior related negatively with pupil growth in both subgroups. Non-verbal Gentle Control related negatively with Concrete growth for both groups. Factor 6, Seat Work, showed a number of negative associations with subject-matter growth for disadvantaged pupils. The correlations were smaller for advantaged pupils and were not significant because of the smaller number of classrooms involved.

Pupil Negative Affect was negatively related to some pupil growth measures in both groups, particularly with skill.

Teacher individual attention (Factor 8) was unrelated to pupil growth except for Individual and Total Concrete for advantaged pupils. This result differed from disadvantaged pupils and from the kindergarten data, but the relation may reflect aspects of the factor which involve close supervision of the pupils. Teacher Positive Affect showed significant negative associations with pupil growth in both subgroups, as it did for small cities for kindergarten. Again, the only suggestions which can be offered are that the items of this factor were more impressionistic rather than specific and that there was little suggestion of task involvement in the factor. The same reversal of sign for group and individual measures appeared for the advantaged subgroup.

Although there was generally little differentiation of these subgroups in the way classroom behavior related to growth, there was a suggestion for a difference for Strong Control. The same reversal in sign from group to individual measures occurred for advantaged pupils but not for disadvantaged, paralleling findings for the TPOR.

Summary and Discussion

The major findings of this study of Follow Through classrooms were these:

1. Strong teacher focusing of subject matter was positively related to pupil growth.

2. Strong teacher control of pupil behavior tended to be negatively related to pupil growth.

3. Non-verbal gentle control tended to show mixed results.

4. Pupil negative affect related negatively with growth as would be expected.

5. Teacher positive affect tended to relate negatively with pupil growth, in contrast to expectation and earlier findings.

6. If absences are taken as a reflection of pupil liking for school, they showed mixed results, sometimes increasing under conditions associated with pupil growth, sometimes decreasing.

7. Relations between classroom behavior and pupil growth tended to differ with city size.

8. Relations between classroom behavior and pupil growth tended to be more similar than different for advantaged and disadvantaged.

There is some support in theory for the idea that disadvantaged pupils should find higher degrees of classroom structure functional (Goldberg, 1967), and these data support that point of view rather than the more general view.

The distinction between close teacher focusing of subject matter and strong teacher control of behavior is supported by these findings. It is important to make the distinction because close teacher focusing related positively to growth, and strong teacher control related negatively. While strong teacher control of behavior related negatively, the indications for gentle control being positively related were mixed.

Although pupil negative affect related negatively to pupil growth as would be expected, the evidence that teacher positive affect related positively was not clear. The latter findings raise questions about the view that "all they need is love." The suggestion that group administered tests may relate differently to classroom behavior than individually administered measures for advantaged pupils but not for disadvantaged remains unexplained.

Differences in subgroups based on city size seemed relatively clear, but differences based on advantaged status were not. The differences by city size in these results and the differences between these results and earlier findings in the same research indicate the likelihood of finding differences between subgroups in relation to variables which at this point are not known. It would appear that exploration of large amounts of data from different settings is needed. A part of the problem is probably the lack of randomly drawn samples, but it is not clear how that problem may be solved.

The possibility of clarifying relationships among multiple variables in these data by complex analysis of variance is appealing. However, several recent articles have argued against using individual pupils as degrees of freedom, and such a complex analysis could not be carried very far using classroom means.

It does not seem safe on the basis of these findings to assume that differences in relations between classroom behavior and pupil growth from subgroup to subgroup can be assumed to occur because of their falling at different positions in a generally nonlinear relationship (the inverted "U" hypothesis). Rather, it appears that in some cases the regressions are linear but different. But of course, differing nonlinear relations may be found within subgroups.

If this research adds to understanding, perhaps its clearest contribution is toward further indication of the complexity of the problem of identifying effective teaching.

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Factors Affecting Pupil Cognitive Growth in Disadvantaged Children[1]

Robert S. Soar[2], Ruth M. Soar[3]
Marjorie Ragosta[2], Earl Blekking[2]

The attached tables present results from 106 Follow Through classrooms, kindergarten and non-entering first grades. The data related mean gain for pupils, expressed as three levels of complexity or abstractness, to factor scores for observational data of the classrooms from the Teacher Practices Observation Record and the Florida Climate and Control Schedule.

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[2]University of Florida, Gainesville.

[3]Florida Educational Research and Development Council, Gainesville, Fla.

Table 1
Teacher Practices Observation Record
Means and Standard Deviations for Pupil Data for Kindergarten

Factors	By City Size			
	Small Cities[1]		Large Cities[2]	
	$\bar{X}$	S	$\bar{X}$	S	p
1. Convergent Teaching	44.3	7.1	49.6	5.5	.01
2. Experimental Teaching	48.7	4.2	49.2	4.3	
3. Teacher Discourages Exploration	45.9	2.8	49.4	4.2	.01
4. Undifferentiated Teaching	48.7	4.6	50.1	7.0	
5. Pupil Free Choice vs. T. Structured Activ.	56.4	5.8	50.9	5.5	.01
6. Unnamed	50.8	6.5	50.1	3.9	
7. Exploration of ideas vs. Textbook Teaching	54.9	5.5	50.1	4.9	.01

Correlations with Pupil Data for Kindergarten

Factors	By City Size							
	Small Cities[1]				Large Cities[2]			
	Abs.	Conc.	Skill	Absent	Abs.	Conc.	Skill	Absent
1. Convergent Teaching	.76**	-.07	.65*	.12	-.01	-.13	.06	.04
2. Experimental Teaching	-.49	.01	-.39	.15	-.03	.01	.02	-.10
3. Teacher Discourages Exploration	.05	-.11	-.26	.07	-.06	-.22	.13	-.34*
4. Undifferentiated Teaching	-.43	-.34	-.13	.35	-.04	.02	-.12	.12
5. Pupil Free Choice vs. T. Structured Activ.	-.69**	.05	-.64*	.17	-.11	.02	-.21	.09
6. Unnamed	-.46	-.43	-.66**	.44	.08	.03	.11	.20
7. Exploration of ideas vs. Textbook Teaching	-.56*	.20	-.46	.09	-.11	.04	-.11	-.04

[1]N = 14 Classrooms [2]N = 40 Classrooms * $p < .05$; ** $p < .01$

Table 2
Teacher Practices Observation Record
Means and Standard Deviations for Non-entering First Grades

By City Size

	Factors	Small Cities[1]		Large Cities[2]		
		$\bar{X}$	S	$\bar{X}$	S	p
1.	Convergent Teaching	50.2	8.7	50.3	6.9	
2.	Experimental Teaching	46.8	4.2	51.1	6.1	.02
3.	Teacher Discourages Exploration	50.9	7.7	49.9	4.6	
4.	Undifferentiated Teaching	46.5	8.4	51.3	7.4	.05
5.	Pupil Free Choice vs. T. Structured Activ.	46.8	6.1	50.4	5.6	.05
6.	Unnamed	47.9	4.1	50.8	4.9	.05
7.	Exploration of ideas vs. Textbook Teaching	46.6	7.6	50.3	5.6	

[1] N = 17 Classrooms [2] N = 35 Classrooms

By Socio-Economic Status

	Factors	Advantaged[1]		Disadvantaged[2]		
		$\bar{X}$	S	$\bar{X}$	S	p
1.	Convergent Teaching	49.7	9.6	51.0	7.3	
2.	Experimental Teaching	46.6	4.8	50.4	6.0	
3.	Teacher Discourages Exploration	45.5	2.9	50.3	5.8	.05
4.	Undifferentiated Teaching	48.2	7.5	48.7	7.3	
5.	Pupil Free Choice vs. T. Structured Activ.	49.6	6.8	48.9	5.9	
6.	Unnamed	48.4	5.3	50.0	4.8	
7.	Exploration of ideas vs. Textbook Teaching	50.1	7.8	48.6	6.5	

[1] N = 9 Classrooms [2] N = 37 Classrooms

Table 3
Teacher Practices Observation Record
Correlations with Pupil Data for Non-entering First Grades

Factor	Group			Individual			Total			Days
	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.
Small Cities[1]										
1. Convergent Teaching	.27	.14	-.24	.37	.77**	.14	.38	.69**	.04	.54*
2. Experimental Teaching	.17	.22	.10	-.47	-.14	-.35	-.36	-.10	-.21	-.68**
3. Teacher Discourages Exploration	-.16	.31	-.45	-.58*	.28	-.59*	-.48*	.33	-.52*	-.15
4. Undifferentiated Teaching	-.13	.10	.36	.19	-.01	.29	-.13	-.02	.41	-.11
5. Pupil Free Choice vs. Teacher Structured Action	.22	-.37	.42	-.13	-.67**	.19	-.01	-.66**	.20	-.51*
6. Unnamed	.16	-.09	.32	-.32	-.13	.08	-.24	-.20	.16	-.04
7. Exploration of Ideas vs. Textbook Teaching	.14	-.37	.49*	-.06	-.70**	.25	-.00	-.70**	.29	-.47
Large Cities[2]										
1. Convergent Teaching	.23	.39*	.20	.42*	.43**	-.18	.46**	.40*	-.08	-.01
2. Experimental Teaching	-.35*	-.45**	-.41*	-.28	-.53**	-.38*	-.45**	-.53**	-.33*	-.04
3. Teacher Discourages Exploration	.06	.08	.06	.14	.00	-.22	.05	-.01	-.19	-.13
4. Undifferentiated Teaching	-.28	.24	.26	.39*	.24	.10	.06	.25	.05	-.05
5. Pupil Free Choice vs. Teacher Structured Action	-.38*	-.46**	-.37*	-.39*	-.49**	-.21	-.48**	-.47**	-.24	.14
6. Unnamed	.10	.13	.07	.20	.12	-.17	.05	.10	-.11	.18
7. Exploration of Ideas vs. Textbook Teaching	-.34*	-.56**	-.49**	-.43**	-.51**	-.26	-.45**	-.50**	-.30	-.02

[1]N = 17 Classrooms. [2]N = 35 Classrooms * $p < .05$; ** $p < .01$

Table 4
Teacher Practices Observation Record
Correlations with Pupil Data for Non-entering First Grades

Factor	Group			Individual			Total			Days
	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.
Advantaged[1]										
1. Convergent Teaching	.21	-.55	-.44	.46	.60	.48	.35	.56	.60	-.17
2. Experimental Teaching	-.25	.66	.52	-.22	-.72*	-.62	-.32	-.67*	-.66	-.05
3. Teacher Discourages Exploration	-.28	.14	.32	-.18	-.55	-.09	-.25	-.53	-.22	.30
4. Undifferentiated Teaching	-.55	.37	.45	.67*	-.26	.29	-.45	.04	.31	.11
5. Pupil Free Choice vs. T. Structured Activ.	.06	.37	.30	-.46	-.48	-.36	-.02	-.54	-.47	.04
6. Unnamed	.36	.06	-.01	-.59	-.00	-.56	.13	-.18	-.55	-.04
7. Exploration of Ideas vs. Textbook Teaching	.09	.36	.42	-.40	-.57	-.36	-.02	-.63	-.48	.19
Disadvantaged[2]										
1. Convergent Teaching	.30	.36*	.15	.46**	.58**	-.03	.38*	.55**	.03	.07
2. Experimental Teaching	-.32	-.38*	-.24	-.33*	-.56**	-.16	-.39*	-.50**	-.11	-.01
3. Teacher Discourages Exploration	.00	.18	-.22	-.23	.14	-.58**	-.15	.19	-.50**	-.35*
4. Undifferentiated Teaching	.00	.15	.35*	.35*	.00	.29	.13	.02	.32	.06
5. Pupil Free Choice vs. T. Structured Activ.	-.40*	-.50**	-.12	-.27	-.63**	.13	-.40*	-.63**	.03	.16
6. Unnamed	.06	.08	.21	.08	-.16	.03	.01	-.14	.10	.19
7. Exploration of Ideas vs. Textbook Teaching	-.36*	-.56**	-.13	-.19	-.64**	.19	-.34*	-.64**	.12	.07

[1]N = 9 Classrooms [2]N = 37 Classrooms * $p < .05$; ** $p < .01$

Table 5
Florida Climate and Control System
Means and Standard Deviations for Pupil Data for Kindergarten

Factors	By City Size: Small Cities[1] X	S	Large Cities[2] X	S	p
1. Strong Control	47.1	5.4	51.2	7.2	
2. Pupil Free Choice vs. No Choice	53.7	6.2	52.1	4.4	
3. Teacher-Pupil Supportive Behavior	49.8	4.8	50.7	5.7	
4. Non-verbal Gentle Control	50.9	5.5	50.6	6.2	
5. Gentle Control	51.5	5.6	50.2	5.2	
6. Seat Work	44.4	4.2	47.2	5.8	
7. Pupil Negative Affect	49.2	6.6	52.3	6.5	
8. Teacher Attention in a Task Setting	50.8	4.7	49.1	6.6	
9. Teacher Positive Affect	54.8	5.3	50.2	6.3	.05

Correlations with Pupil Data for Kindergarten

Factors	By City Size: Small Cities[1] Abs.	Skill	Conc.	Absent	Large Cities[2] Abs.	Skill	Conc.	Absent
1. Strong Control	-.26	-.52	-.27	.30	-.09	-.07	-.11	.22
2. Pupil Free Choice vs. No Choice	-.67**	-.55*	.22	-.26	-.17	-.09	-.12	.04
3. Teacher-Pupil Supportive Behavior	-.56*	-.47	-.32	.77**	-.03	-.06	-.03	.07
4. Non-verbal Gentle Control	.49	.54*	-.23	.06	-.24	-.15	-.25	.09
5. Gentle Control	-.24	-.15	.23	-.03	.08	.08	-.05	.15
6. Seat Work	.09	-.23	.00	-.29	-.23	-.13	-.27	-.27
7. Pupil Negative Affect	-.54*	-.72**	-.53*	.25	-.15	-.06	-.16	.12
8. Teacher Attention in a Task Setting	-.24	-.06	-.13	-.34	.16	.52**	-.02	-.34*
9. Teacher Positive Affect	-.56*	-.39	.32	-.30	.02	.22	-.02	-.18

[1]N = 14 Classrooms [2]N = 40 Classrooms * $p < .05$; ** $p < .01$

Table 6
Florida Climate and Control System
Means and Standard Deviations for Non-entering First Grades

By City Size

Factors	Small Cities[1]		Large Cities[2]		
	$\bar{X}$	S	$\bar{X}$	S	p
1. Strong Control	48.4	5.6	51.5	5.2	
2. Pupil Free Choice vs. No Choice	47.8	7.8	49.6	5.4	
3. Teacher-Pupil Supportive Behavior	46.7	7.0	50.1	5.7	
4. Non-verbal Gentle Control	53.9	8.5	48.0	5.4	.01
5. Gentle Control	50.1	6.7	47.8	5.8	
6. Seat Work	53.4	6.9	51.3	7.3	
7. Pupil Negative Affect	45.9	4.4	50.5	5.6	.01
8. Teacher Attention in a Task Setting	51.7	6.2	48.8	5.2	
9. Teacher Positive Affect	52.4	7.0	47.9	6.4	.05

[1]N = 17 Classrooms [2]N = 35 Classrooms

By Socio-Economic Status

Factors	Advantaged[1]		Disadvantaged[2]		
	$\bar{X}$	S	$\bar{X}$	S	p
1. Strong Control	45.3	4.5	51.5	5.5	.01
2. Pupil Free Choice vs. No Choice	50.7	8.8	48.6	5.4	
3. Teacher-Pupil Supportive Behavior	45.3	6.1	49.7	6.4	
4. Non-verbal Gentle Control	50.4	8.0	51.1	7.2	
5. Gentle Control	50.9	8.5	48.7	5.9	
6. Seat Work	48.7	3.4	52.5	7.5	
7. Pupil Negative Affect	45.9	5.5	49.7	5.7	
8. Teacher Attention in a Task Setting	50.3	5.0	50.2	5.4	
9. Teacher Positive Affect	50.8	8.6	49.7	6.2	

[1]N = 14 Classrooms [2]N = 40 Classrooms

Table 7
Florida Climate and Control System
Correlations with Pupil Data for Non-entering First Grades
for Small Cities[1]

Factor	Group			Individual			Total			Days
	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.
1. Strong Control	-.08	.21	-.52*	-.55*	.28	-.53*	-.30	.29	-.53*	.08
2. Pupil Free Choice vs. No Choice	.20	-.36	.44	-.11	-.71**	.15	-.01	-.71**	.16	-.47
3. Teacher-Pupil Supportive Behavior	.15	.12	-.19	-.65**	-.05	-.44	-.39	.01	-.40	-.51*
4. Non-verbal Gentle Control	.10	.16	-.45	-.19	.28	-.28	.04	.31	-.39	.36
5. Gentle Control	.29	.18	.18	.21	.12	.14	.26	.07	.20	.03
6. Seat Work	.04	.33	-.65**	-.64**	.37	-.76**	-.39	.42	-.73**	-.31
7. Pupil Negative Affect	-.03	-.16	-.17	-.52*	-.33	-.27	-.25	-.34	-.27	-.21
8. Teacher Attention in a Task Setting	-.20	-.06	.03	-.27	-.40	-.23	-.19	-.35	-.23	-.12
9. Teacher Positive Affect	.19	.30	-.05	-.36	-.06	-.33	-.15	-.03	-.27	-.51*

[1]N = 17 Classrooms. * $p < .05$; ** $p \leq .01$.

Table 8
Florida Climate and Control System
Correlations with Pupil Data for Non-entering First Grades
for Large Cities[1]

Factor	Group			Individual			Total			Days
	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.
1. Strong Control	-.01	.15	.12	.09	-.07	-.19	-.07	-.04	-.10	.07
2. Pupil Free Choice vs. No Choice	-.21	-.42*	-.31	-.26	-.52**	-.21	-.43**	-.51**	-.21	-.02
3. Teacher-Pupil Supportive Behavior	-.41*	-.43**	-.37*	-.10	-.41*	-.40*	-.40*	-.42*	-.37*	.17
4. Non-verbal Gentle Control	-.42*	-.29	-.17	-.17	-.40*	-.15	-.41*	-.37*	-.14	-.12
5. Gentle Control	-.17	-.12	-.10	.01	-.05	-.18	-.11	-.08	-.19	.00
6. Seat Work	.05	-.50**	-.34*	-.32	-.45**	-.28	-.30	-.45**	-.29	.00
7. Pupil Negative Affect	-.17	-.29	-.23	-.20	-.43**	-.35*	-.24	-.43**	-.29	.00
8. Teacher Attention in a Task Setting	.05	.16	.22	.16	.06	.19	.09	.05	.22	.17
9. Teacher Positive Affect	-.30	-.54**	-.42*	-.28	-.50**	-.20	-.39*	-.50**	-.26	-.05

[1] N = 35 Classrooms. * $p < .05$; ** $p < .01$

Table 9
Florida Climate and Control System
Correlations with Pupil Data for Non-entering First Grades
for Advantaged Pupils[1]

Factors	Group			Individual			Total			Days
	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.
1. Strong Control	-.08	-.14	-.37	-.68*	-.02	-.14	-.18	-.08	-.30	.21
2. Pupil Free Choice vs. No Choice	.25	.32	.28	-.42	-.48	-.48	.16	-.60	-.56	.02
3. Teacher-Pupil Supportive Behavior	-.15	.29	.42	-.36	-.68*	-.54	-.13	-.75*	-.65	.16
4. Non-verbal Gentle Control	.34	-.26	-.71*	.00	.27	.21	.37	.24	.18	-.15
5. Gentle Control	.37	-.13	.46	.57	-.38	-.10	.37	-.44	-.08	.45
6. Seat Work	.12	-.01	.31	-.45	-.31	-.29	.13	-.50	-.39	.16
7. Pupil Negative Affect	-.09	.08	.01	-.68*	-.36	-.27	-.20	-.42	-.47	.33
8. Teacher Attention in a Task Setting	.16	.12	-.02	-.51	-.39	-.76*	.13	-.58	-.81**	-.09
9. Teacher Positive Affect	.35	.07	.59	.06	-.60	-.40	.30	-.74*	-.44	.37

[1]N = 9 Classrooms * $p < .05$; ** $p < .01$

Table 10
Florida Climate and Control System
Correlations with Pupil Data for Non-entering First Grades
for Disadvantaged Pupils[1]

Factors	Group			Individual			Total			Days
	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.	Skill	Conc.	Abs.
1. Strong Control	-.01	.13	.01	-.08	-.18	-.31	-.09	-.12	-.18	.07
2. Pupil Free Choice vs. No Choice	-.22	-.40*	.01	-.13	-.65**	.16	-.32*	-.66**	.10	.06
3. Teacher-Pupil Supportive Behavior	-.32*	-.26	-.27	-.32	-.35*	-.28	-.39*	-.29	-.24	.03
4. Non-verbal Gentle Control	-.12	-.03	-.43**	-.20	.17	-.49**	-.15	.18	-.46**	-.14
5. Gentle Control	.00	.08	.05	.11	.26	.09	.03	.24	.11	.02
6. Seat Work	-.06	-.27	-.46**	-.51**	-.12	-.48**	-.34*	-.07	-.44**	-.16
7. Pupil Negative Affect	-.19	-.29	-.10	-.18	-.56**	-.15	-.22	-.55**	-.07	.06
8. Teacher Attention in a Task Setting	.00	.23	.11	.00	.09	-.14	.05	.06	-.12	-.08
9. Teacher Positive Affect	-.17	-.16	-.40*	-.44**	.03	-.30	-.30	.05	-.33*	-.28

[1] N = 37 Classrooms * $p < .05$; ** $p < .01$